

SPECTROPHOTOMETER CF-300

with USB Camera

Standard Operating Procedure



Before using this instrument, please
read this manual.



KONICA MINOLTA

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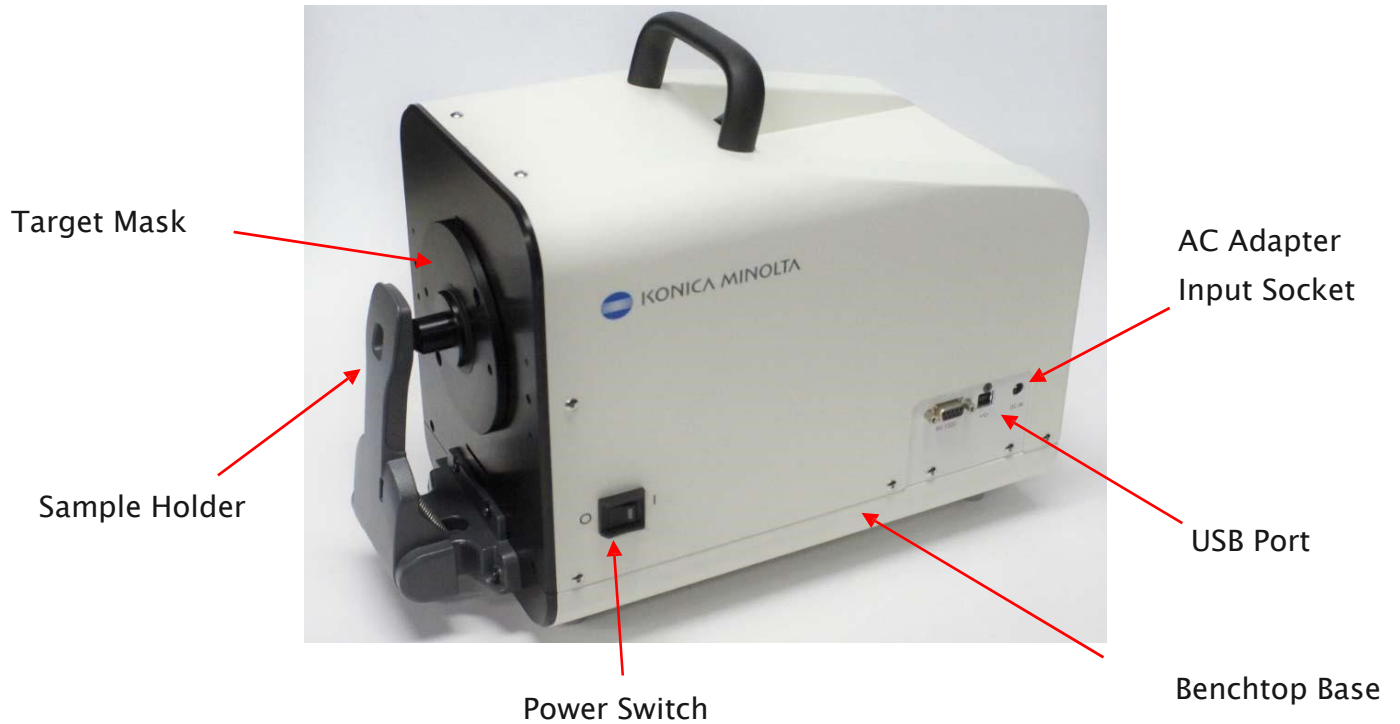
Notes on this Manual

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- The screen images shown in this manual are for illustrative purposes only and may differ from the actual product screens.
- Every effort has been made in the preparation of this manual to ensure the accuracy of its contents. However, should you have any questions or find any errors, please contact your retailer or a KONICA MINOLTA-authorized service facility.
- KONICA MINOLTA will not accept any responsibility for consequences arising from the use of the instrument.

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1. Names of Parts



<White Calibration Plate>



<White Calibration Adapter>



<Target Mask>

XUSAV Target Mask



MAV Target Mask



NC(Non-Contact) Target Mask



<Zero Calibration Box>



<USB Cable>



<AC Adapter>



<Camera Adapter>



<Finder Camera>

Lens

Conversion Adapter

USB Camera

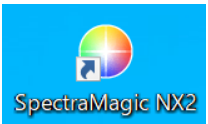
USB Cable

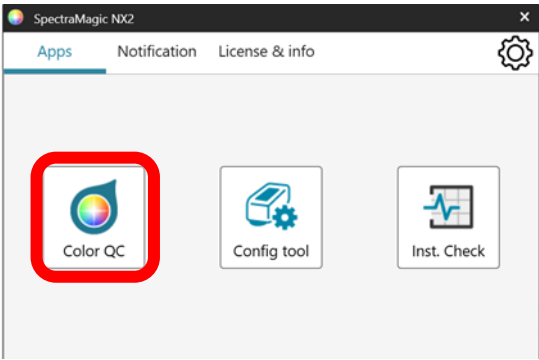
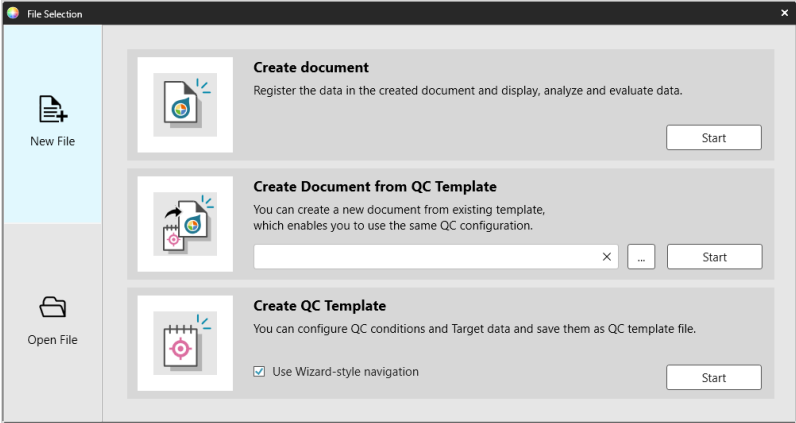
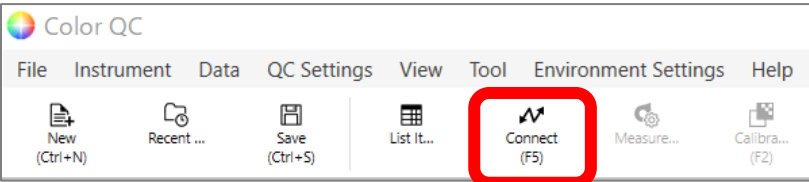
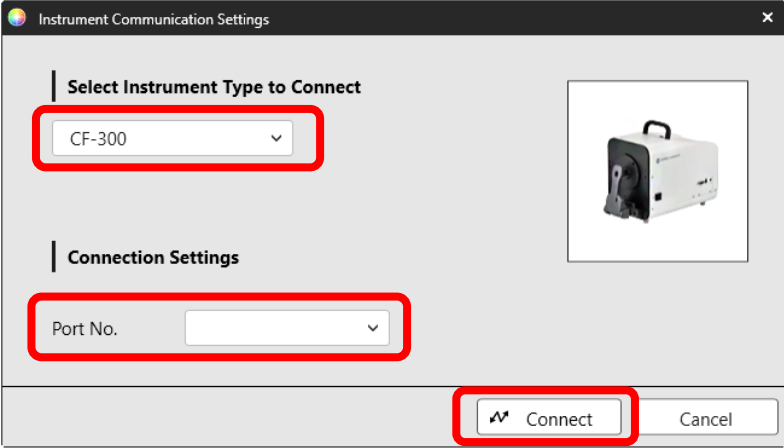


2. Preparation

Note:

- Ensure that your PC has at least **two available USB ports**. (If the SpectraMagic NX2 software is used with a USB dongle, **one additional USB port is required.**) If sufficient ports are not available, use a USB hub.
- When using a USB camera, ensure that **a USB 3.0 port is available.**

	Connect AC Adapter and USB Cable to CF-300.
	Turn on the Instrument (Press the "I" side of the Power switch).
	Attach the Target Mask.
	Connect the CF-300 to the PC.
	Start the software "SpectraMagic NX2".

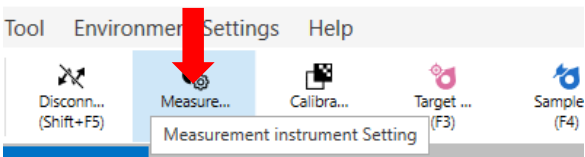
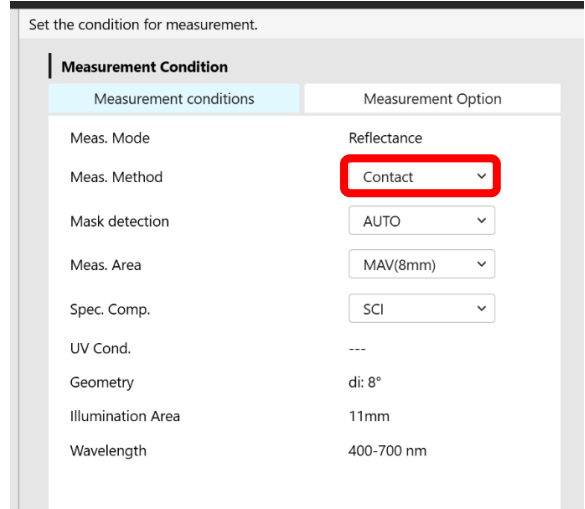
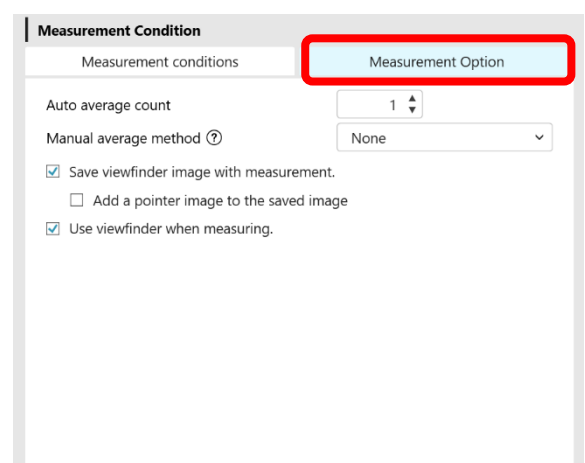
	Click “Color QC.”
	Select a file.
	Click "Connect" in the toolbar.
	1. Select “CF-300” in “Select Instrument Type to Connect.” 2. Select the desired Port No. in “Connection Settings.” 3. Click “Connect.” *This process can be omitted if CF-300 has been most recently connected.

3. Measurement

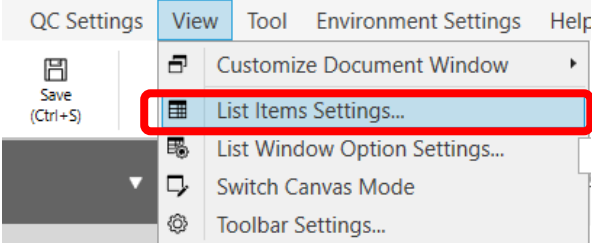
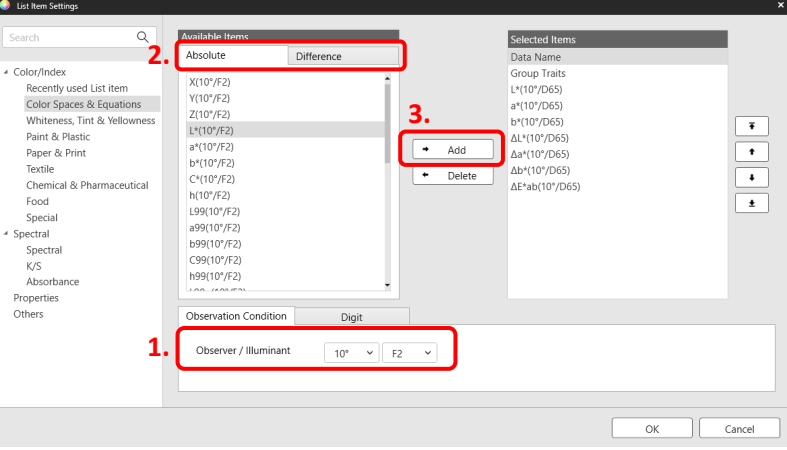
3-1. Contact Measurement

Preparation

<Measurement Condition>

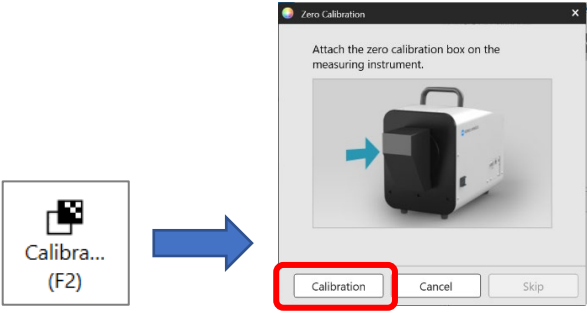
	Click "Measurement Instrument Setting."
	Select "Contact" in "Meas. Method" and "AUTO" in "Mask detection." Select your settings in "Meas. Area" and "Spec. Comp."
	For averaged measurement, click "Measurement Option" and set count and method. When "Save viewfinder image with measurement" is checked, the viewfinder image at the time of measurement will be automatically saved with the measurement data. When "Add a pointer image to the saved image" is checked, the saved viewfinder image will include the pointer image. When "Use viewfinder when measuring" is checked, the Viewfinder dialog will appear when a target measurement or sample measurement is started. The measurement can then be taken from the Viewfinder dialog.

< List Items Settings>

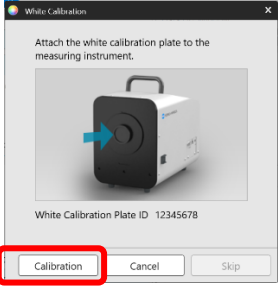
 The screenshot shows the 'View' menu in a software application. The menu items are: 'Customize Document Window', 'List Items Settings...', 'List Window Option Settings...', 'Switch Canvas Mode', and 'Toolbar Settings...'. The 'List Items Settings...' option is highlighted with a red rectangular box.	Click “View” – “List Items Settings”
 The screenshot shows the 'List Item Settings' dialog box. It has a left sidebar with categories like 'Color/Index', 'Spectral', and 'Properties'. The main area has two tabs: 'Absolute' and 'Difference'. The 'Absolute' tab is selected. Below the tabs are two lists: 'Available Items' and 'Selected Items'. The 'Available Items' list contains various colorimetric and spectral parameters. The 'Selected Items' list is currently empty. At the bottom, there are dropdown menus for 'Observer / Illuminant' (set to '10°') and 'Digit' (set to 'F2'). A red box labeled '1.' highlights these dropdowns. Another red box labeled '2.' highlights the 'Absolute' tab. A third red box labeled '3.' highlights the 'Add' button between the two lists.	1. Select your settings of “Observer / Illuminant.” 2. Select your settings from “Absolute” and “Difference” tabs. 3. Click “Add”.

Calibration

< Zero Calibration>

 Target Mask	Attach the Target Mask (MAV or XUSAV)
 Sample Holder Zero Calibration Box	Set the Zero Calibration Box onto the groove on the front panel and fix it by the sample holder.
	Click "Calibration" on the toolbar – "Calibration."

< White Calibration>

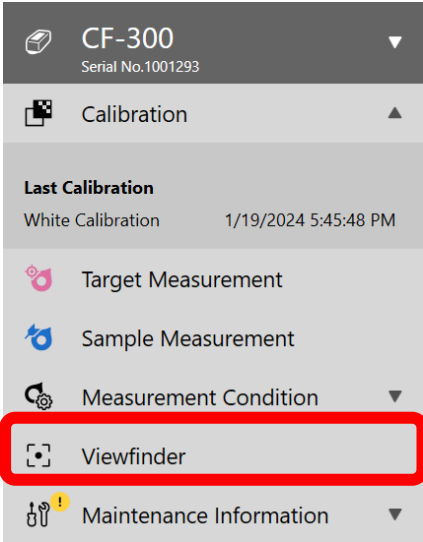
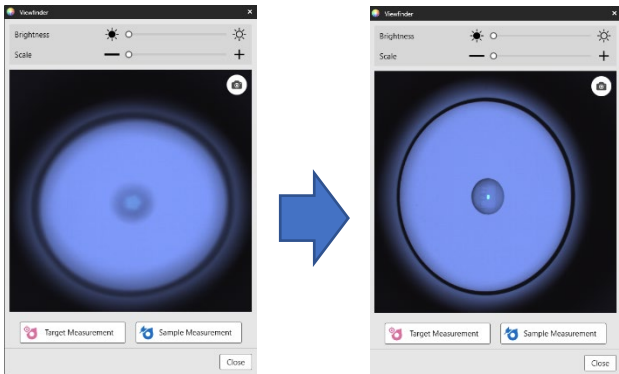
 White Calibration Plate	Set the White Calibration Plate on the center of the Target Mask and fix it by the sample holder.
	Click "Calibration."

Attaching USB Camera

Measurement position can be set by using a USB camera and Viewfinder on SpectraMagic NX2.

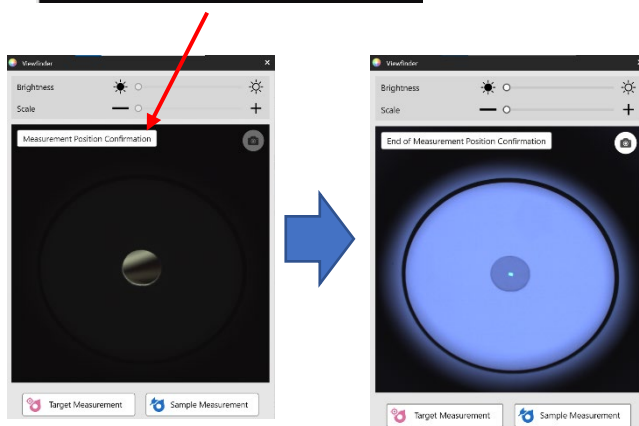
 The diagram shows three components: a lens, a conversion adapter, and a USB camera. A blue arrow points down to a single assembled unit where the lens is attached to the adapter, which is then connected to the camera. Lens Conversion Adapter USB Camera	Assemble the camera, conversion adapter and lens. *Please be careful not to touch the lens surface.
 A close-up of the assembled unit. A red arrow points to the 'Aperture Ring' which has markings for 0.25, 1.4, 4, 8, and 16. A red box highlights the '4' marking. Another red arrow points to the 'Lock screw' located below the aperture ring. Aperture Ring Lock screw	Set the aperture ring to "4" and tighten the lock screw.
 The diagram shows two views of the camera adapter. The left view is a top-down perspective with two red arrows pointing to 'Rotating-lock screws'. The right view is a side profile of the adapter. Rotating-lock screw	Attach the camera unit to the finder camera adapter, and tighten the Rotating-lock screws of the camera adapter.

Finder Cap 	Detach the finder cap from CF- 300.
Camera Unit 	Mount the camera unit over the finder of CF-300.
Rotating-lock screw 	1. Loosen the Rotating-lock screws of the camera adapter. 2. Roughly adjust the tilt of the camera in the vertical direction. 3. Tighten one of the Rotating- lock screws. 4. Connect the USB cable to the camera. *Please connect to a USB 3.0 port, that can supply power.

	Click “Viewfinder” on SpectraMagic NX2.
White Paper 	Attach the XUSAV target mask and set a white paper.
Camera Unit   <Example when XUSAV mask is used>	Rotate the camera unit while monitoring, and adjust the focus.

Click

Measurement Position Confirmation



<Example when MAV mask is used>

If you use MAV mask, click “Measurement Position Confirmation” to turn up the light and the pointer.

Click “End of Measurement Position Confirmation” to turn off.

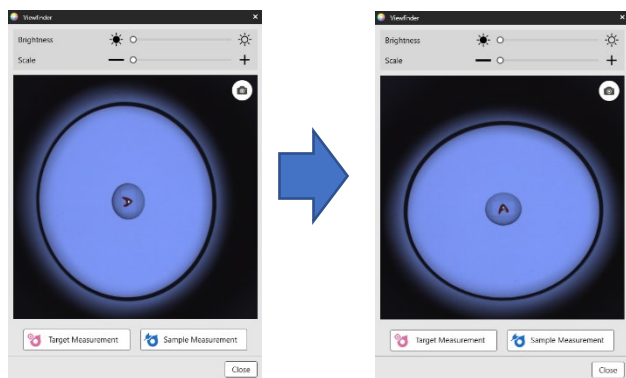
Lock screw of the focus ring.



Tighten the lock screw of the focus ring.

Rotating- lock screw

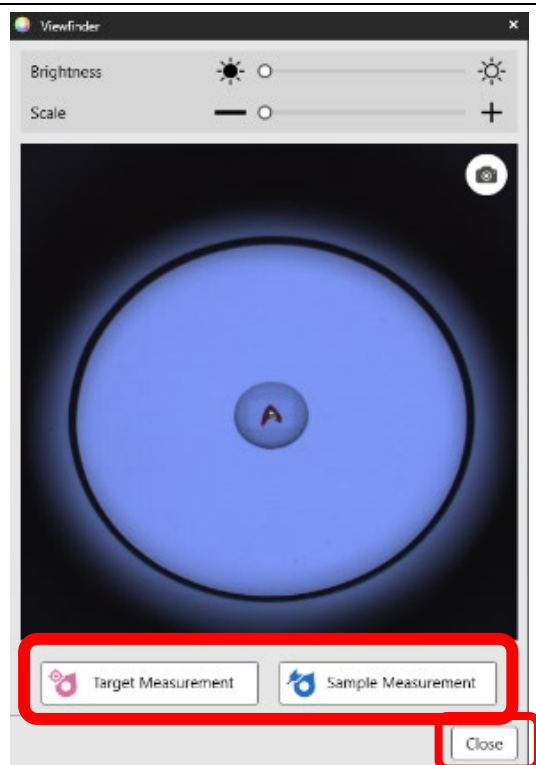
Camera Unit



1. Rotate the camera unit while monitoring, and adjust the tilt of the camera in the vertical direction.
2. Tighten the Rotating-lock screw.



Adjust Brightness and Scale if the view is unclear.



Select “Target Measurement” or “Sample Measurement” to measure while watching the Viewfinder.

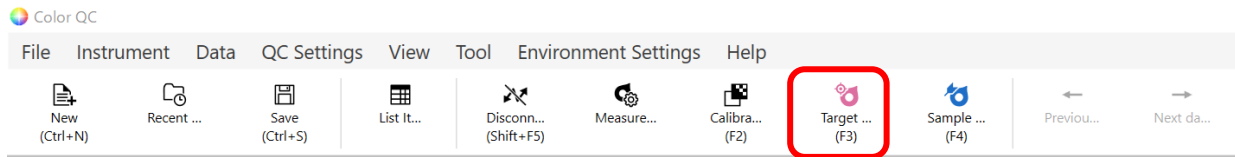
Click “Close” to go back to the screen.

Measurement

<Measure>

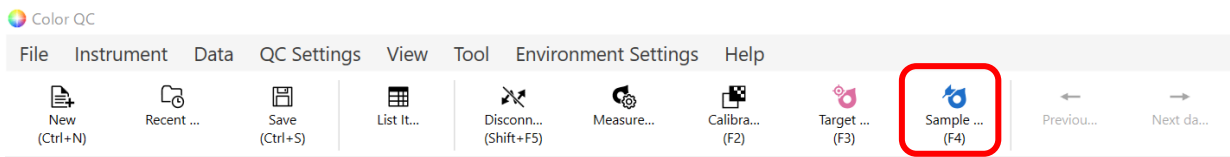
Target:

Click "Target Measurement" in the toolbar to measure the target.



Sample:

Click "Sample Measurement" in the toolbar to measure the sample.



Measurement results are shown on Data List Window.

Data List Window								
	Data Name ▾	$L^*_{(10^\circ/D65)}$	$a^*_{(10^\circ/D65)}$	$b^*_{(10^\circ/D65)}$	$\Delta L^*_{(10^\circ/D65)}$	$\Delta a^*_{(10^\circ/D65)}$	$\Delta b^*_{(10^\circ/D65)}$	$\Delta E^*_{ab(10^\circ/D65)}$
Target	Target #00001	77.99	4.76	28.02	---	---	---	---
1	Sample #00001	83.61	2.95	23.90	5.62	-1.81	-4.12	7.20

<Save file>

Color QC

File Instrument Data QC Settings View

New (Ctrl+N) Recent ... Save (Ctrl+S) List It...

Click "Save."

The document is saved in your local folder.

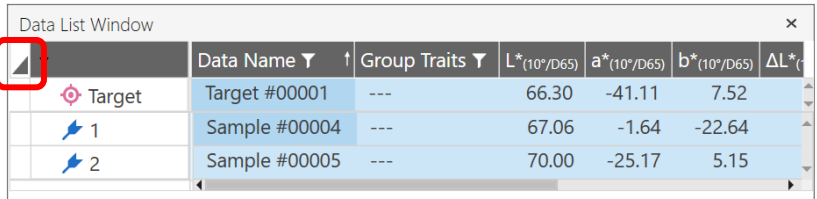
< CF-300 disconnection >

QC Settings View Tool Environment Setti

Save (Ctrl+S) List It... Disconn... (Shift+F5) Measure...

Click "Disconnect."

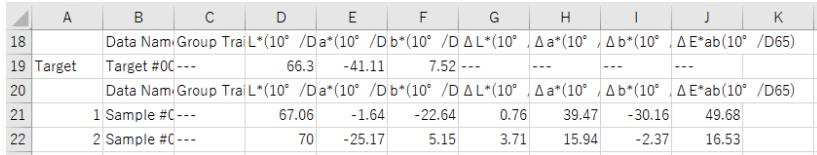
<Copy and Paste to EXCEL>



Select the data by clicking and dragging over the cells.

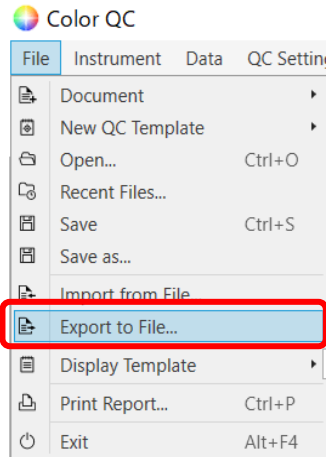
The entire row can be selected by clicking .

Press Ctrl + C.



Press Ctrl + V or select “Paste” on Excel.

< Export all data as CSV>

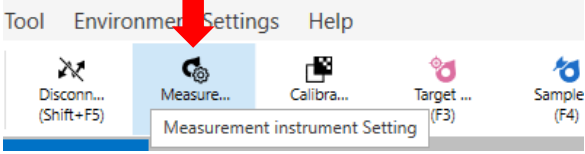
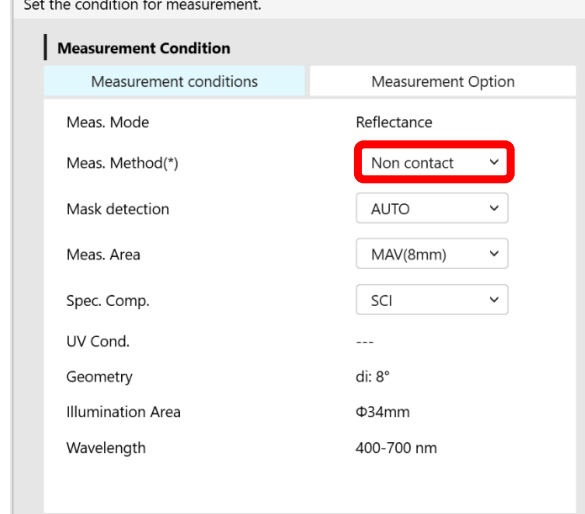
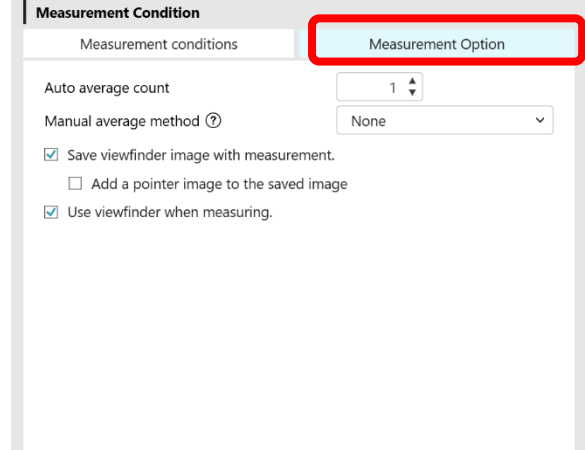


Click “File” – “Export to File...”

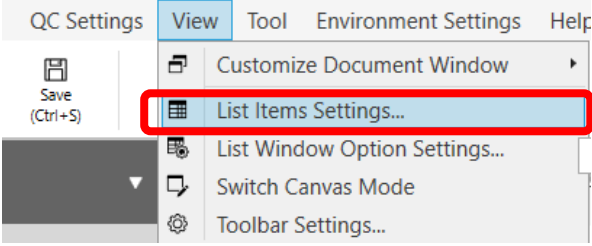
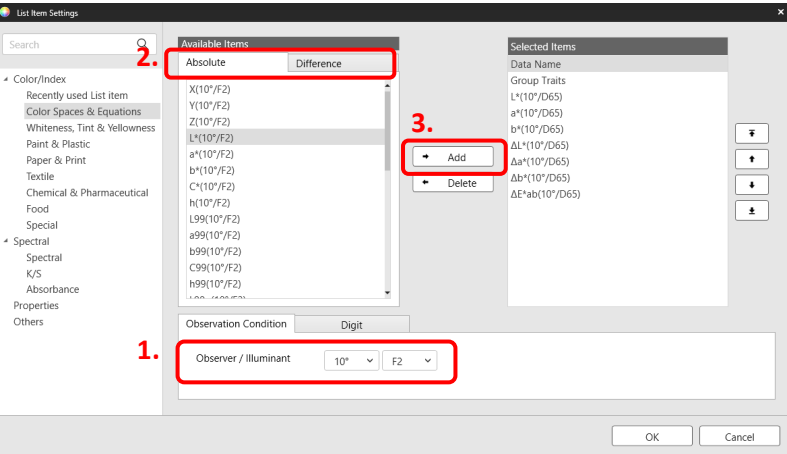
The file can be saved as .csv file.

3-2. Non-Contact Measurement Preparation

<Measurement Condition>

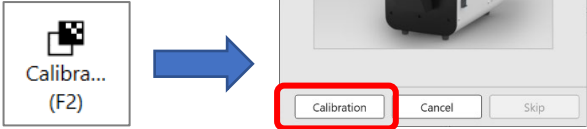
	Click "Measurement Instrument Setting."
	Select "Non-Contact" in "Meas. Method" and "AUTO" in "Mask detection." Select your settings in "Meas. Area" and "Spec. Comp."
	For averaged measurement, click "Measurement Option" and set count and method. When "Save viewfinder image with measurement" is checked, the viewfinder image at the time of measurement will be automatically saved with the measurement data. When "Add a pointer image to the saved image" is checked, the saved viewfinder image will include the pointer image. When "Use viewfinder when measuring" is checked, the Viewfinder dialog will appear when a target measurement or sample measurement is started. The measurement can then be taken from the Viewfinder dialog.

< List Items Settings>

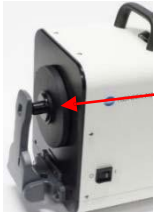
 The screenshot shows the 'View' menu in a software application. The menu items are: 'Customize Document Window', 'List Items Settings...' (highlighted with a red rectangle), 'List Window Option Settings...', 'Switch Canvas Mode', and 'Toolbar Settings...'.	Click “View” – “List Items Settings”
 The screenshot shows the 'List Item Settings' dialog box. It has a left sidebar with categories like 'Color/Index', 'Spectral', and 'Absorbance'. The main area has two tabs: 'Absolute' and 'Difference'. The 'Absolute' tab is selected. Below the tabs are two lists: 'Available Items' and 'Selected Items'. The 'Available Items' list contains various colorimetric and spectrophotometric parameters. The 'Selected Items' list is empty. At the bottom, there are dropdown menus for 'Observer / Illuminant' (set to '10°') and 'Digit' (set to 'F2'). A red rectangle highlights the 'Add' button in the 'Available Items' list. Red numbers 1, 2, and 3 are placed near the 'Observer / Illuminant' dropdown, the 'Absolute' tab, and the 'Add' button respectively.	1. Select your settings of “Observer / Illuminant.” 2. Select your settings from “Absolute” and “Difference” tabs. 3. Click “Add”.

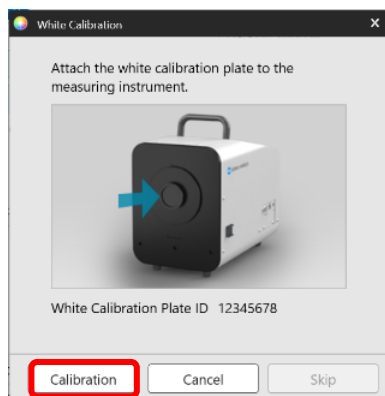
Calibration

< Zero Calibration>

 NC Target Mask	Attach the NC Target Mask.
 Sample Holder Zero Calibration Box	Set the Zero Calibration Box onto the groove on the front panel and fix it by the sample holder.
	Click "Calibration" on the toolbar – "Calibration."

< White Calibration>

 White Calibration Adapter	Set the White Calibration Adapter onto the NC Target Mask and hold it by hand.
 White Calibration Plate	Set the White Calibration Plate on the center of the White Calibration Adapter and fix it by the sample holder.



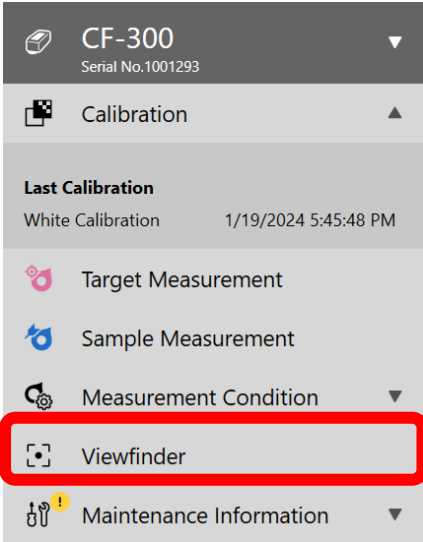
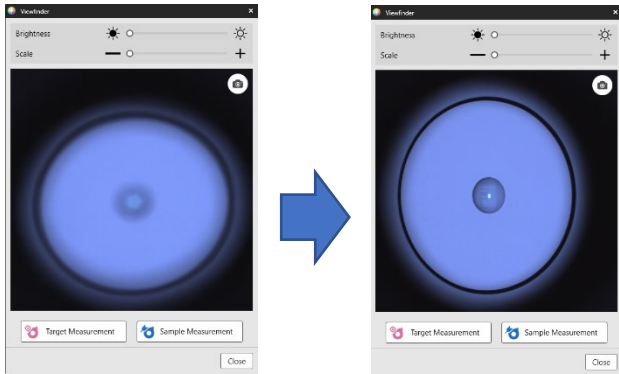
Click "Calibration."

Attaching USB Camera

Measurement position can be set by using a USB camera and Viewfinder on SpectraMagic NX2.

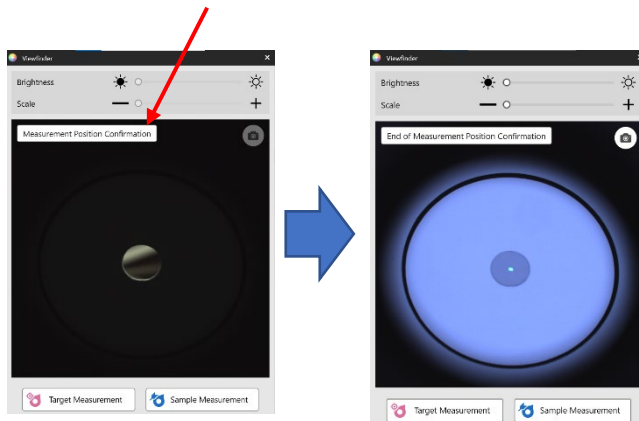
 Lens Conversion Adapter USB Camera  	Assemble the camera, conversion adapter and lens. *Please be careful not to touch the lens surface.
 Aperture Ring Lock screw	Set the aperture ring to "4" and tighten the lock screw.
  Rotating-lock screw	Attach the camera unit to the finder camera adapter, and tighten the Rotating-lock screws of the camera adapter.

 Finder Cap	Detach the finder cap from CF- 300.
 Camera Unit	Mount the camera unit over the finder of CF-300.
 Rotating-lock screw	1. Loosen the Rotating-lock screws of the camera adapter. 2. Roughly adjust the tilt of the camera in the vertical direction. 3. Tighten one of the Rotating- lock screws. 4. Connect the USB cable to the camera. *Please connect to a USB 3.0 port, that can supply power.

 CF-300 Serial No.1001293 Calibration ▲ Last Calibration White Calibration 1/19/2024 5:45:48 PM Target Measurement Sample Measurement Measurement Condition ▼ Viewfinder Maintenance Information ▼	Click “Viewfinder.”
White Paper 	Attach the XUSAV target mask and set a white paper.
Camera Unit  	Rotate the camera unit while monitoring, and adjust the focus.

Click

Measurement Position Confirmation



<Example when MAV mask is used>

If the measurement area is MAV (8mm), click “Measurement Position Confirmation” to turn up the light and the pointer.

Click “End of Measurement Position Confirmation” to turn off.

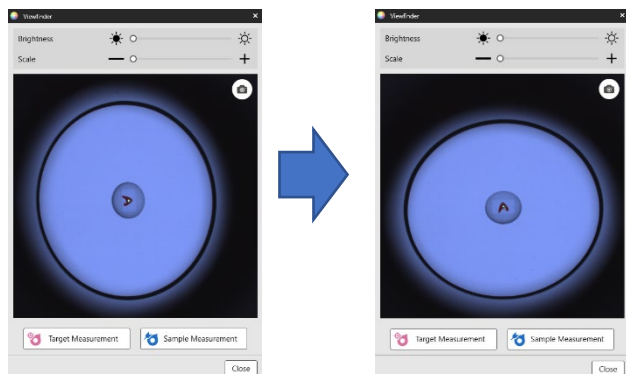
Lock screw of the focus ring.



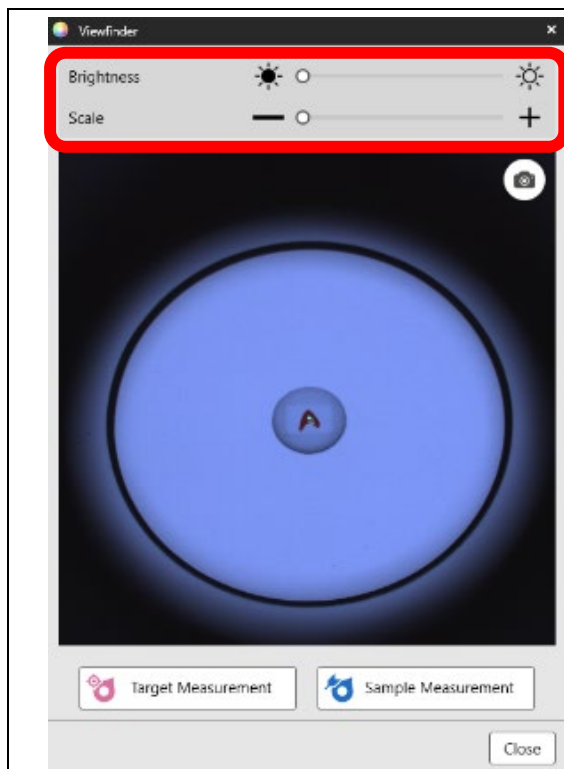
Tighten the lock screw of the focus ring.

Rotating- lock screw

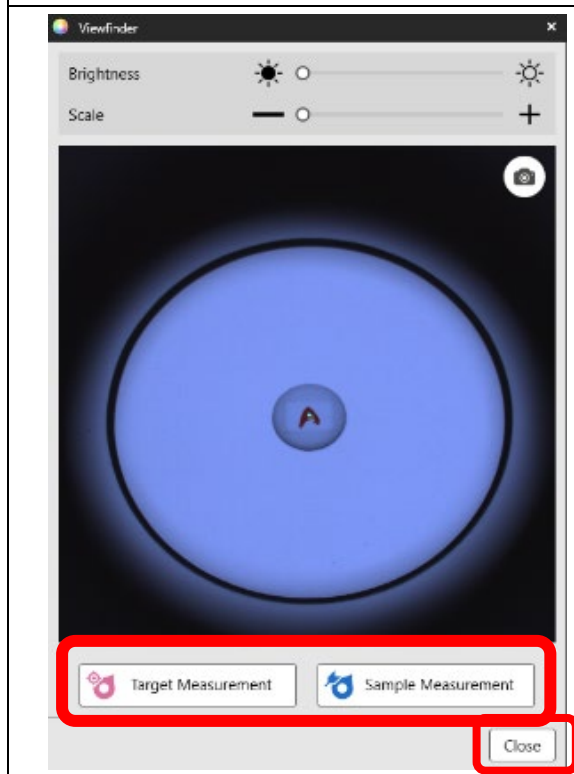
Camera Unit



1. Rotate the camera unit while monitoring, and adjust the tilt of the camera in the vertical direction.
2. Tighten the Rotating-lock screw.



Adjust Brightness and Scale if the view is unclear.



Select “Target Measurement” or “Sample Measurement” to measure while watching the Viewfinder.

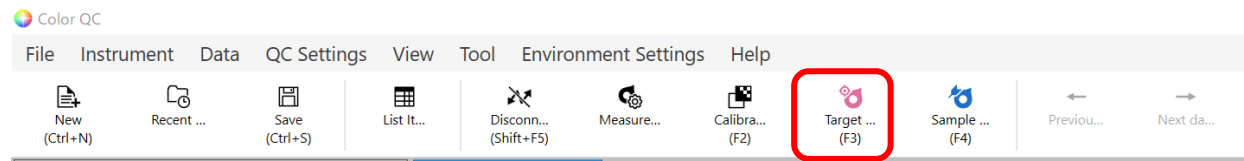
Click “Close” to go back to the screen.

Measurement

<Measure>

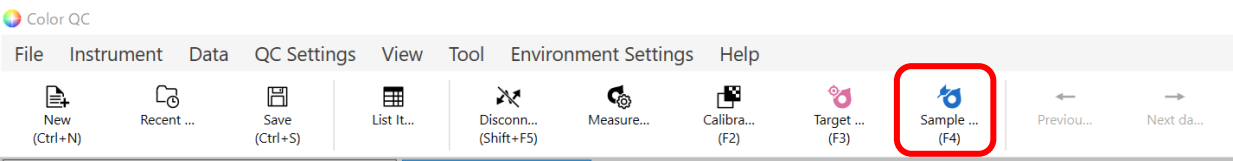
Target:

Click "Target Measurement" in the toolbar to measure the target.



Sample:

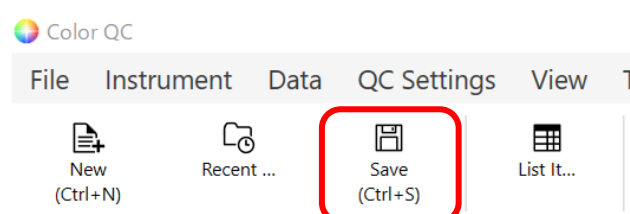
Click "Sample Measurement" in the toolbar to measure the sample.



Measurement results are shown on Data List Window.

Data List Window								
	Data Name ▾	$L^*_{(10^\circ/D65)}$	$a^*_{(10^\circ/D65)}$	$b^*_{(10^\circ/D65)}$	$\Delta L^*_{(10^\circ/D65)}$	$\Delta a^*_{(10^\circ/D65)}$	$\Delta b^*_{(10^\circ/D65)}$	$\Delta E^*_{ab(10^\circ/D65)}$
Target	Target #00001	77.99	4.76	28.02	---	---	---	---
1	Sample #00001	83.61	2.95	23.90	5.62	-1.81	-4.12	7.20

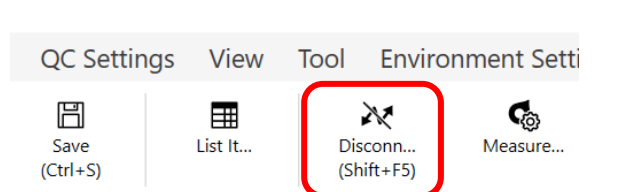
<Save file>

A screenshot of the Color QC software toolbar. The menu bar includes File, Instrument, Data, QC Settings, View, and Tool. The toolbar contains icons for New (Ctrl+N), Recent, Save (Ctrl+S), and List It.... The 'Save (Ctrl+S)' button is highlighted with a red rectangular box.

Click "Save."

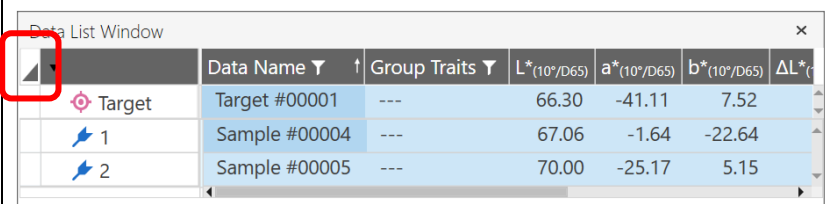
The document is saved in your local folder.

< CF-300 disconnection >

A screenshot of the Color QC software toolbar. The menu bar includes QC Settings, View, Tool, and Environment Settings. The toolbar contains icons for Save (Ctrl+S), List It..., Disconn... (Shift+F5), and Measure.... The 'Disconn... (Shift+F5)' button is highlighted with a red rectangular box.

Click "Disconnect."

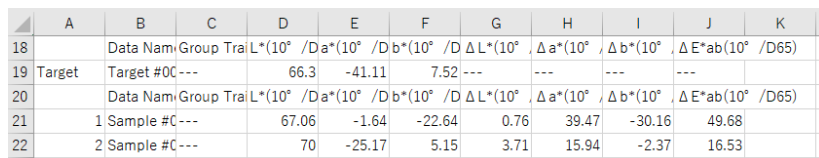
<Copy and Paste to EXCEL>



The entire row can be selected by clicking .

Press Ctrl + C.

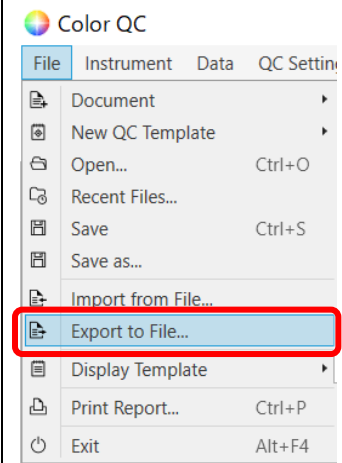
Select the data by clicking and dragging over the cells.



Press Ctrl + V or select “Paste” on Excel.

Press Ctrl + V or select “Paste” on Excel.

< Export all data as CSV>



Click “File” – “Export to File...”

The file can be saved as .csv file.

< CAUTION >

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